

subopaca; antennis crassiusculis; thorace profunde canaliculato, scutello simplice.

Long. 3 millim.

Antennæ stout, fourth to tenth joints transverse. Thorax nearly as long as broad, narrower than the elytra, much narrowed behind, closely and finely punctate, deeply canaliculate from the front to near the base, where the channel expands into a fovea. Elytra a little longer than the thorax, a little narrowed at the shoulders, densely punctate; scutellum densely punctate. Hind body a little narrower towards the base, densely punctate, the basal segments slightly paler than the others.

Kashiwagi, Nara, Sheba, Shimonosuwa, Bukenji, Sapporo.

This is closely allied to *F. thoracica*, but it is rather larger and of a nearly uniform brown colour, the antennæ are considerably thicker, and the punctuation is denser. Like the European species it inhabits the nests of ants in trees.

Falagria sulcata.

Staphylinus sulcatus, Payk. Mon. Staph. Suec. p. 32.

Yokohama and Hakodate.

[To be continued.]

XXXVII.—Notes on the Palaeozoic Bivalved Entomostraca.—
No. XXVI. On some new Devonian Ostracoda. By Prof.
T. RUPERT JONES, F.R.S., F.G.S. With a Note on their
Geological Position, by the Rev. G. F. WHIDBORNE,
M.A., F.G.S.

[Plate XI.]

I.

THE new Ostracodous genus herein described is founded on numerous specimens discovered by the Rev. G. F. Whidborne, F.G.S., in a Devonian Limestone at Daddy-Hole Cove, near Torquay, Devonshire.

KYAMODES, gen. nov.

Carapace bivalved, subconvex; dorsal edge straight, ven-

tral boldly rounded; ends rounded and nearly equal; like a short Windsor or broad bean*. The valves have a crumpled appearance at the mid-dorsal region, due to the presence of three unequal tubercles (on each valve) and intervening furrows, close together, and diverging more or less from the middle of the hinge-line towards the depressed area within the marginal rims. The tubercles are hollow inside, and vary somewhat in the two valves and with individuals. The free, curved edges of the valves are thick and generally somewhat raised; and the left valve overlaps the right to some extent ventrally. The hingement appears to be perfectly simple. The surface of the valve is smooth, being destitute of any ornament.

Numerous individuals of this new genus, sometimes with perfect valves closed together, but often imperfect, occur in thin seams of limestone near Torquay, Devon (see Mr. Whidborne's Note at page 298). They constitute a considerable portion of the rock, and become visible, like the other organisms, only by the weathering of the limestone, whereby it loses its blue colour and takes on tints of red and grey.

There are two chief forms of this curious fossil, one semicircular and the other semielliptical in the ventral curve. The latter is a variety, relatively larger and rarer than the other; it has the three tubercles distinct (almost Beyrichian) in the smaller or younger condition (fig. 8), and less so in the larger individuals (fig. 10). Another variety (fig. 9) has the tubercles still further reduced to two unequal prominences.

1. *Kyamodes Whidbornei*, gen. et sp. nov.
(Pl. XI. figs. 1-7.)

Size { Figs. 1-5: Long $1\frac{9}{10}$ mm., high $1\frac{1}{2}$ mm., thick 1 mm.
Fig. 6: Long $1\frac{1}{2}$ mm., high $1\frac{1}{5}$ mm.
Fig. 7: Long 2 mm., high $1\frac{1}{2}$ mm.

Semilunar in outline, being straight on the dorsal edge, and otherwise almost semicircular, except that one end (anterior) has a more rapid curve than the other, the postero-dorsal thus becoming sharper than the front angle. The edge view (fig. 4) is narrow-oval, modified ventrally by the thickened edges of the valves, and dorsally showing in its middle divergent furrows and intervening tubercles, somewhat like the undeveloped limbs of some embryo (fig. 5).

* Hence the generic name *Kyamodes*, from *κνאַμῶδης* (for *κνאַμοείδης*), like a bean (*κῦαμος*).

The end view is roughly cuneiform, lumpy above, and notched below (fig. 3).

On the right valve (fig. 1) three medial tubercles are defined near the back and close together. One in front is curved; the middle one is low down and weak; and the hinder tubercle rises a little above the dorsal line, and the valve is gently swollen behind it. In the opposite valve (fig. 2) the anterior has coalesced with the middle tubercle, and protrudes beyond the dorsal line, while the hinder tubercle does not rise high up and has a slight subsidiary ridge behind it.

In figs. 6 and 7 the interiors of two left valves show modifications of the hollows which correspond to external elevations.

1*. *Kyamodes Whidbornei*, var. *elliptica*, nov.
(Pl. XI. figs. 8 and 10, a, b.)

Size { Fig. 8: Long $1\frac{1}{2}$ mm., less than $\frac{1}{2}$ mm. high.
 { Fig. 10: Long $2\frac{1}{4}$ mm., $1\frac{1}{5}$ mm. high.

With greater length, less height, and less convexity, the adult form of this variety differs from the type described above. The tubercles are not so strongly pronounced, the two chief knobs being equal, not very prominent, and more widely separate than in figs. 1 and 2. The middle tubercle is much reduced, though visible on the anterior side of the broad sulcus.

In the smaller (probably younger) form, fig. 8, all three tubercles are prominent, being defined by two intermediate sulci and two curved furrows within and parallel with the raised terminal margins of the valve. A Beyrichian alliance of the genus is indicated by the distinctness of the lobes, the width of the intervening depressions, and the greater relative width of the posterior lobe, with the faint subdivisions of its surface. The essential characters, however, are the same as in fig. 10, and even there they are not specifically distinct from those of the other forms (figs. 1-7) which have departed so far from the Beyrichian type.

1***. *Kyamodes Whidbornei*, var. *obsolescens*, nov.
(Pl. XI. fig. 9.)

Size: Long 2 mm., high $1\frac{1}{4}$ mm.

Here the sulcus is not so strong as in either of the other forms; the anterior and middle tubercles are represented

only by a local swelling; and the posterior lobe alone remains as an important eminence, with an indefinite swelling behind it. In shape this valve is not so long as fig. 10, and is not so semicircular as figs. 1, 2, 6, and 7.

EXPLANATION OF PLATE XI.

[The figures are magnified 20 diameters.]

- Fig. 1.* *Kyamodes Whidbornei*, gen. et sp. nov. Carapace; right valve shown, with the edge of the other valve.
Fig. 2. The same. Left valve seen.
Fig. 3. The same. Posterior aspect.
Fig. 4. The same. Ventral aspect.
Fig. 5. The same. Dorsal aspect.
Fig. 6. The same. Interior of a left valve.
Fig. 7. The same. Interior of another left valve.
Fig. 8. *Kyamodes Whidbornei*, var. *elliptica*, nov. Small individual; right valve.
Fig. 9. *Kyamodes Whidbornei*, var. *obsolescens*, nov. Right valve.
Fig. 10. *Kyamodes Whidbornei*, var. *elliptica*, nov. Left valve. *a*, outside; *b*, outline of edge view.

II. Note on the Geological Position of the Specimens.

By the Rev. G. F. WHIDBORNE, M.A., F.G.S.

In order to define the position of the beds in which the Devonian Ostracoda here described by Professor Rupert Jones occur, it will be necessary to go somewhat into detail.

The cliffs of Meadfoot Bay consist of a mass of shales, surmounted on the east side by the *Pleurodictyum*-beds under Kilmorie and on the west by the mass of limestone which forms the plateau of Daddy-Hole Plain. The latter limestone has been shown by the late Mr. Champernowne* to be much folded and doubled on itself, and its beds are truncated parallel to the general shore-line by a great open fault which is filled in with Triassic Conglomerate, and which has evidently been subjected to subsequent movement, as even quartz-pebbles contained in it have their surfaces levelled and striated.

The western arm of Meadfoot Bay terminates in a sharp crag, cut off from the main mass by this fault, and curiously like the little island a few hundred feet beyond it called the "Shag," which is evidently a continuation of the same bed thrown eastward by a second fault. Between this crag and the main promontory of Daddy-Hole Plain come in order two

* Trans. Devonshire Assoc. &c. vol. vi. 1874, p. 548.

quarries and a cove. The first of these quarries is small, and is worked in dark limestones, dipping south-west, veined with calcite and containing Crinoid stems, *Serpulæ*, and Corals. Its back is formed by the fault, behind which shaly beds are to be seen. Crossing the fault at the western edge of this quarry we enter a second and larger quarry, which has been excavated in grey, thick-bedded, and very lenticular limestones, also dipping south-west. Below these come some alternating beds of thin limestones and shales, overlying the shales mentioned before, and the highest of which forms the north-east slope of the quarry. As the workmen have not troubled to work below this, it is only towards the front of the quarry that the succession of these alternating beds is exposed. Their edges, bent upwards and ultimately crumpled by the great fault before referred to, show nine or ten thin limestone bands, giving altogether a thickness of about 5 feet. It is from the upper surface of one of the most central of these bands that the Ostracods were obtained, and I have not found them in any of the other beds. In this band, however, they occur in crowds, and they are accompanied more rarely by a minute spiral *Vermetus* (?) with lamellar rings, and by a small Brachiopod (*Athyris concentrica*, Buch). Both the interiors and the exteriors of the valves are exposed, and occasionally the two valves occur united, so it would appear that they were living at the time of the deposition of the strata. The succeeding cove is the one described by Mr. Champernowne, in which he found *Calceola* *.

The *Beyrichia* which Professor Rupert Jones will describe in another communication was found by Mr. T. Roberts, Mr. Solly, and other members of Professor T. M'Kenny Hughes's Cambridge party during their visit to Torquay last Easter, in the red beds of the "New Cut" or Lincombe-Hill Drive, from which Mr. Champernowne obtained his *Homalotus* some years ago †. These beds lie high up on the slope of the Ilsham valley, some hundred yards to the north of Meadfoot Bay. They are considered by Professor Hughes to be the same as, or, more probably, slightly lower than, the *Pleurodictyum*-beds of Kilmorie, and he has obtained *Pleurodictyum* and other fossils from beds in their immediate neighbourhood.

* *Loc. cit.* p. 549.

† See *Geol. Mag.* 1881, pp. 487-491, pl. xiii., and 1882, pp. 157, 158, pl. iv. fig. 3.